

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claim in the application:

Listing of Claims:

1. (Original) A longitudinal magnetic field compacting method for manufacturing a rare earth magnet in the shape of a butterfly for use in VCM of HDD or DVD, a disk or coin for use in coreless motors, and a block for linear motors, comprising the following steps of:

melting an alloy including 27-36wt% RE/59-73wt% Fe/0-5wt% TM/0-2wt% B by a vacuum induction heating process, to obtain a molten alloy, which is then subjected to a strip casting process or a chill mold casting process, to prepare an alloy ingot;

hydrogenating the alloy ingot in a range of room temperature to 200°C to increase pulverizability of the alloy ingot;

pulverizing the alloy ingot by means of a jet mill, an attritor mill, a ball mill or a vibration mill, to prepare rare earth powders having a particle size of 2-6 μm ;

applying a pulse magnetic field to the rare earth powders so that the rare earth powders are oriented in a direction of an applied magnetic field and subjected to a longitudinal magnetic field compacting, based on the principle that a magnetic material is attracted to a center of a magnetic field coil by the pulse magnetic field, to form a compacted body;

sintering the compacted body at 1000-1100°C in a vacuo or argon atmosphere,
to prepare a sintered body; and

heat-treating the sintered body at 400-900°C, thereby obtaining a rare earth
magnet.

2. (Original) The method as defined in claim 1, wherein the pulverizing step is performed in a nitrogen atmosphere or an inert gas atmosphere so as to prevent magnetic properties of the rare earth magnet from reducing due to oxygen contamination.
3. (Original) The method as defined in claim 1, wherein the rare earth powders are packed in a metal mold to have a packing density of 2.0-4.0 g/cc, increasing the degree of orientation of the powders.
4. (Cancelled)
5. (Cancelled)
6. (Withdrawn) A longitudinal magnetic field compacting device, comprising:
a nonmagnetic metal mold having a cavity with a predetermined shape for uniformly packing rare earth powders therein;

a magnetic field coil part for applying a pulse magnet field several times to the nonmagnetic metal mold positioned in a central portion thereof so that the rare earth powders in the metal mold are aligned in a direction of an applied magnetic field;

an upper punching part and a lower punching part respectively made of a magnetic material and a nonmagnetic material and disposed to come into close contact with a top and a bottom of the nonmagnetic metal mold;

a nonmagnetic core disposed at a lower portion of the nonmagnetic metal hold;

a buffering spring disposed at a lower portion of the lower punching part for fixing the position of the lower punching part after compacting;

an air compressor connected to each of a first air cylinder mounted above the upper punching part, a second air cylinder mounted below the buffering spring, and third and fourth air cylinders mounted to both lower ends of the nonmagnetic metal mold, so that air is fed to each air cylinder to move the nonmagnetic metal mold; and

a magnetizer connected to the magnetic field coil part for feeding a magnetic field power to the magnetic field coil part.

7. (New) A longitudinal magnetic field compacting method for manufacturing a rare earth magnet, comprising the steps of:

melting an alloy comprising about 27-36wt% RE/ about 59-73wt% Fe/ about 0-5wt% TM/ about 0-2wt% B by a vacuum induction heating process, to obtain a molten alloy, which is then subjected to a casting process, to prepare an alloy ingot;

hydrogenating the alloy ingot in a temperature range of about room temperature to about 200°C;

pulverizing the alloy ingot, to prepare a rare earth powder;

applying a pulse magnetic field to the rare earth powders, to form a compacted body;

sintering the compacted body at about 1000 to about 1100°C in a vacuo or argon atmosphere, to prepare a sintered body; and

heat-treating the sintered body at about 400 to about 900°C, thereby obtaining a rare earth magnet.

8. (New) A longitudinal magnetic field compacting method according to claim 7 wherein said magnetic field is alternately applied 2-10 times.

9. (New) A longitudinal magnetic field compacting method according to claim 8 wherein said magnetic field is in the range of about 30-70 kOe.

10. (New) A longitudinal magnetic field compacting method according to claim 7 wherein said magnetic field is in the range of about 30-70 kOe.

11. (New) A longitudinal magnetic field compacting method according to claim 7 wherein said alloy ingot is pulverized to prepare a rare earth powder having a particle size of about 2 to about 6 μm .

12. (New) A longitudinal magnetic field compacting method according to claim 7 wherein said compacting method is performed in a compacting device comprising upper and lower punching parts, and at least one of said upper and lower punching parts are actuated about one to about ten times.

13. (New) The method as defined in claim 7, wherein the pulverizing step is performed in a nitrogen atmosphere or an inert gas atmosphere so as to prevent magnetic properties of the rare earth magnet from reducing due to oxygen contamination.

14. (New) The method as defined in claim 7, wherein the rare earth powders are packed in a metal mold to have a packing density of 2.0-4.0 g/cc, increasing the degree of orientation of the powders.

15. (New) A longitudinal magnetic field compacting method for manufacturing a rare earth magnet, comprising the following steps of:

melting an alloy comprising about 27-36wt% RE/ about 59-73wt% Fe/ about 0-5wt% TM/ about 0-2wt% B by a vacuum induction heating process, to obtain a molten alloy, which is then subjected to a casting process, to prepare an alloy ingot;

hydrogenating the alloy ingot in a range of about room temperature to about 200°C;

pulverizing the alloy ingot, to prepare a rare earth powder;

applying a pulse magnetic field to the rare earth powders, to form a compacted body;

sintering the compacted body at about 1000 to about 1100°C in a vacuo or argon atmosphere, to prepare a sintered body; and

heat-treating the sintered body at about 400 to about 900°C, thereby obtaining a rare earth magnet;

wherein said compacting method is performed in a compacting device comprising upper and lower punching parts, and at least one of said upper and lower punching parts are actuated about one to about ten times.